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JUNE, 1922

COMMUNICATIONS

A CLINICAL ACCOUNT OF A SERIES OF CASES OF CAPSULAR (? CAPSULO—SUBCAPSULAR) CATARACT ASSOCIATED WITH THE DEPOSIT OF PIGMENT AT OR AROUND THE CENTRE OF THE CAPSULE, WITH CONSIDERATIONS AS TO THE AETIOLOGY

BY

ERNEST THOMSON, M.D.

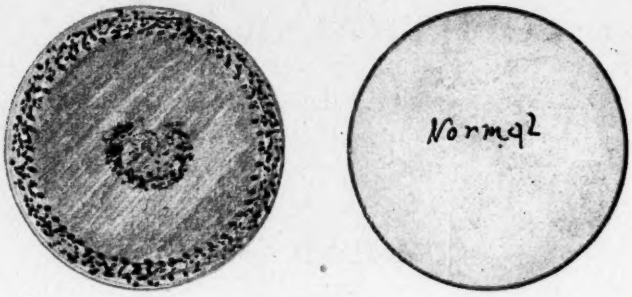
FORMERLY SURGEON TO THE GLASGOW EYE INFIRMARY

PART I.

THE following series is brought forward with the object of calling to such cases the attention of clinicians, and possibly by some piece of good luck, of pathologists, to their characteristics, and in order that similar types may be more adequately described than is here possible.

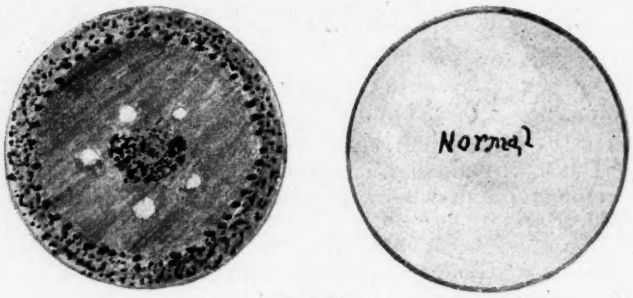
There are seven cases in all. They occurred in the routine examination of school children who had been presented on account of defective vision, and who numbered approximately 7,500. The incidence is, therefore, something under 1 in 1,000. In spite of this considerable frequency a reference to a certain number of standard text-books, to the *Ophthalmoscope* and the BRITISH JOURNAL OF OPHTHALMOLOGY, to the *Transactions of the Ophthalmological Society, U.K.*, and to the *American Encyclopedia of Ophthalmology*, has produced but little to the point. At the same time some of my friends, including Mr. Sydney Stephenson, and

I myself, are under the distinct impression that we have from time to time observed similar cases in the course of clinical work. The probability is that the condition is not very rare but, that, being of academic rather than practical interest, it has not stimulated the clinician to the exercise of his descriptive powers, nor come under the, much less probable, observation of the pathologist.



CASE I.

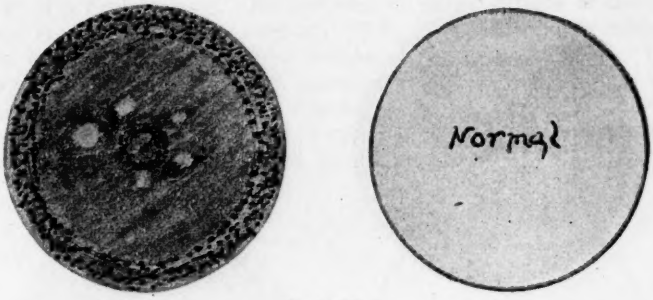
It has been hinted above that the cases here under notice have not been very perfectly recorded. This is due to the fact that very few of them have been seen more than once, so that it has been necessary to rely on the original hasty notes in the case book which were accompanied, fortunately, in most instances, by a rough sketch of the conditions present. The crude diagrams published



CASE II.

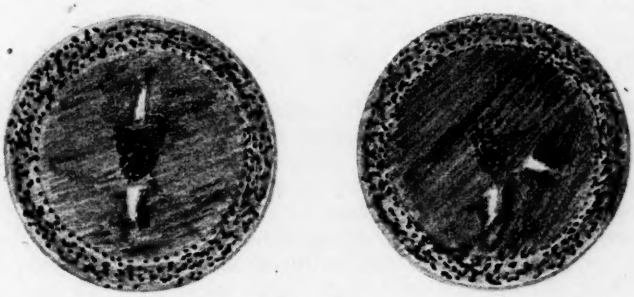
herewith, and for which I offer my apologies, constitute merely an attempt to indicate the general arrangement, the similarities, and the differences of the abnormal appearances. Emphatically they must be regarded as mere diagrams in which the relative size of the interesting parts is perhaps exaggerated, and their positions not necessarily exact.

The seven cases, which occurred in the County of Lanark (but no two of them in the same district of the county, to say nothing of the same family), all show a deposit of pigment at or around, or partially around, the centre of the anterior lens capsule in one or both eyes. In four, the fellow eye was normal, in three, the condition was similar in the two eyes. In addition to the pigment



CASE III.

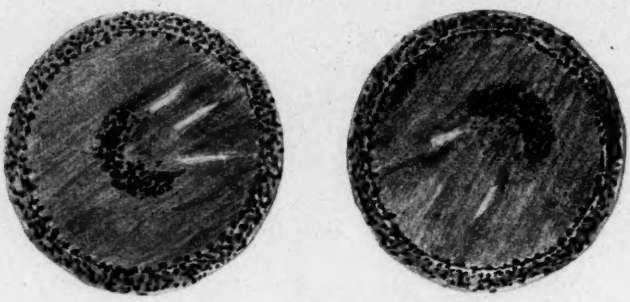
deposit, which varied considerably in amount, six out of the seven presented small opacities which were white or bluish-white like boiled white of duck's egg. Of these six cases with white opacities, in four the latter were rounded, and in two they were radially placed. In two cases out of the seven there were adhesions of the iris to some part or parts of the central



CASE IV.

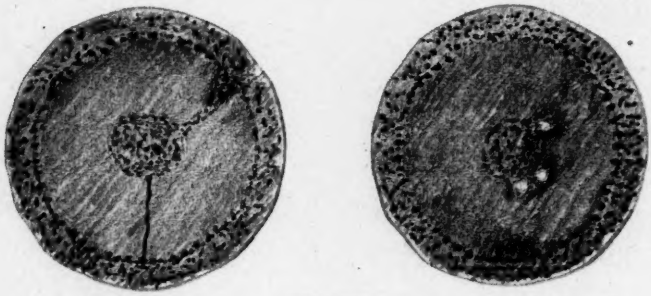
pigmented region of the capsule, while in one of these two there was a tag of persistent pupillary membrane as well as an iris adhesion at another portion of the iris border. In none of the cases was there any reason to think that there had been a post-natal iritis. The white, or bluish-white, spots occurred in every case outside the central pigmented area though apparently in relation

to it. In one, the white spots were so close outside the ring of pigment that, with transmitted light, in which they appeared black, the whole appearance on casual examination might have suggested a lamellar cataract with riders. It is not possible from the available notes to state with certainty the exact depth at which all of these rounded or radiate spots occurred, but in one case (No. 6),



CASE V.

which has been more fully examined than the others and was submitted for observation at a recent meeting of the Scottish Ophthalmological Club, the round white spots seemed definitely to be an integral part of the capsule. The radial white flecks in two of the cases perhaps suggest a sub-capsular position. The most that can be said from memory is that all the opacities seemed to be very



CASE VI.

superficial and were classed in my mind as capsular or sub-capsular opacities. It is unfortunate that of the seven cases five, including the two with radial opacities, have gone quite out of reach and cannot now be followed up. It was, indeed, only on the conclusion of my period of service with the Lanarkshire Education Authority that I had leisure to collate the cases, and by that

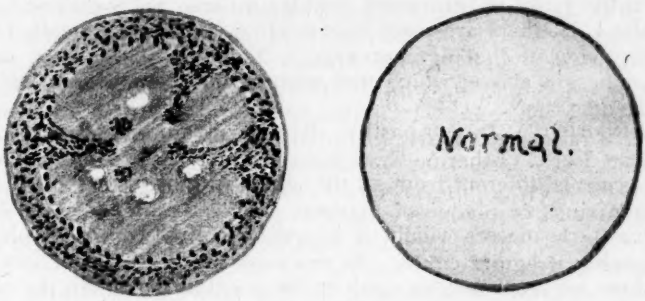
time only two remained at school. It so happens that these two are the two showing iris adhesions (Nos. 6 and 7).

Notes of the individual cases follow :—

Case I. Jessie McC., 9 years. R.E. capsular pigment mainly in form of a broken ring. No other opacities. Fellow eye normal. V.R. less than 1/10, V.L. (corrected) 6/6.

Case II. John McL., 9 years. R.E. pigment mainly in the form of a broken ring. Round whitish spots outside of the pigment ring. Fellow eye normal. V.R. 1/60, V.L. with plus 6.5 sph. 5/9. Right convergent squint.

Case III. Francis B., 11 years. Small ring of pigment with spots around it, the colour of boiled white of duck's egg. One of these spots is considerably larger than the others, and has been visible through the undilated pupil since birth (mother's state-



CASE VII.

ment). Fellow eye normal. V.R. with correction 5/9 partly, V.L. 5/6.

Case IV. James M., 7 years. Both eyes affected. There is a somewhat irregularly shaped pigment area in the centre of each capsule. The original note says, " There is an irregular brown opacity which, on magnification, is seen to be made up of minute dots. In addition, there are in each eye one or two bluish-white opacities which lie in a radial position near the brown opacity." The position of the radial opacities differed in the two eyes. (This case was seen six years ago. It is evident from the V.A. that the pigment shown in the diagram is much too dense, especially in the R.E.) V.R. 6/12, 6/9? V.L. 6/36, 6/24? Left convergent squint.

Case V. Esther McG., 13 years. Both eyes affected. The original note says, " In both eyes at the centre of the anterior part of the lens capsule there are opacities. Parts of this are pigmented in the form shown in the diagram. The other opacities

are the colour of boiled egg white, small, few in number, and arranged radially." The radial opacities in the diagram are probably slightly too large relatively to the diagram, while the pigmented area is almost certainly exaggerated. V.R. 5/12 partly, with letters down to 5/6. V.L. 5/6.

Case VI. James D., 6½ years. This case has been more fully studied than any of the others, and was shown to the Scottish Ophthalmological Club at Glasgow on November 5, 1921. Both eyes affected. In the centre of each anterior capsule is a circular area of fine pigmentation. In the R.E. there are no white opacities. Upwards and inwards there is an adhesion of the iris which can be traced right into the central pigment. It has the appearance of an iritic adhesion. Extending from below upwards to the pigment area there is, as generally agreed by the members of the Club, a thread of persistent pupillary membrane. This, when the pupil is contracted doubles up into an S-shaped loop. In the L.E. there are three round white spots, very small, close to the edge of the pigment area. There is also a very small iris adhesion above, which had escaped notice and is not shown in the diagram.

V.R. 3/60, V.L. 6/9 partly. Right convergent squint.

Case VII. Catherine C., 9 years. The right eye only affected. This case is different from all the others in that instead of a ring, broken ring, or plaque of pigment, this is arranged in the form of five little masses which, if joined by a line would complete a somewhat irregular circle. At the outer margin of most, not all, of these pigment masses, and in the position which, in the other cases, would correspond to the outer border of the pigment ring, are small white dots of the colour of boiled egg white. Three of the pigmented masses have comparatively broad adhesions to the iris which are of the iritic type. V.R. 5/60 not improved. V.L. 5/60 corrected for mixed astigmatism 5/9.

From the clinical appearances alone one can merely speculate upon the aetiology. At first I was inclined to consider the condition as a purely developmental anomaly, but, when it became obvious in the two cases 6 and 7 which occurred in 1920 and 1921, that there were in them, though otherwise so similar to the previous cases, adhesions of the iris indistinguishable from those formed as the result of iritis, I became uncertain as to the parts played respectively by faulty development and ante-natal inflammation. Further, Dr. Leslie Buchanan, to whom I had talked about these capsular cataracts, happened just at this time to see an infant eight months old who was brought to him merely because the mother had noticed white spots in the child's pupils. When atropin was used there were iritic adhesions and white spots in both eyes, which latter in appearance corresponded to the

spots in my cases. Owing to extreme restlessness a complete examination of this child was practically impossible.

Unfortunately Case VII could not be shown to the Scottish Ophthalmological Club, owing to an attack of mumps.

Some may be inclined to suggest that these are really cases of post-natal iritis with pigment left on the lens capsule. There are various reasons for not accepting this view. In the first place there is, so far as I know, no history in any one of them pointing to inflammation of the eyes, although such inflammation cannot be excluded positively. These children were all brought before me as the result of school medical inspection, in the course of which defective vision had been recorded. Secondly, the relatively high frequency of incidence. Thirdly, it is not usual in post-natal iritis to have such a marked deposit of pigment followed by complete or nearly complete withdrawal of the pupil margin, even when the iritis has been recognized and treated with atropin, and one may suppose that, had these been untreated cases of post-natal iritis, in no single instance would the pupil have remained free. Fourthly, post-natal iritis does not result in the formation of egg-white spots on, in, or under the anterior lens capsule. Post-natal iritis may presumably be put out of the reckoning. But it seems to be a fact that in two of the cases there has been iritis which might be regarded as ante-natal. The remaining five cases are so similar in all respects, except the presence of posterior synechiae, that one feels bound to admit that there might have been iritis in them too. But if one base one's ideas on what occurs in post-natal iritis it is somewhat difficult to understand why, in view of the marked pigment deposit, there were not decided posterior synechiae in all of them. In putting the cases, or rather one case and the accounts of the other six, before the members of the Scottish Ophthalmological Club, I asked the meeting to discuss what connection there might be between a developmental error as represented by the egg-white opacities and the persistent pupillary membrane on the one hand, and the evidence of iritis on the other. Did a developmental fault lead to the iritis? The only positive suggestion was that of Dr. A. J. Ballantyne, who thought it more likely that pre-natal iritis might be the cause of faulty development. I cannot do better than transcribe what he has written down for me as the substance of his remarks.

" Dr. Thomson asks for opinions as to the nature of the changes seen in his cases. He has referred to the fact that two of them show, in addition to the lens opacities, true posterior synechiae, while one of these two shows remains of the pupillary membrane as well as synechiae; and he suggests that there may be some connection between the incomplete disappearance of foetal structures and the occurrence of inflammation of the iris. I was interested

in a somewhat similar problem in a case of anterior synechia of pupillary membrane remains which I reported in the *Transactions of the Ophthal. Soc.*, Vol. XXV, and it has been discussed by Treacher Collins in these *Transactions*, Vol. XXVII and elsewhere. I would hazard the suggestion that in these cases of Dr. Thomson's the deposits, pigmented and unpigmented, on the lens are remains of the tunica vasculosa lentis, and that the occurrence of pre-natal inflammation of the uvea caused the persistence of fragments of this foetal structure."

I am not by any means sure that Dr. Ballantyne's ingenious explanation is the correct one. The most common cause of iritis is syphilis, yet Hutchinson says that iritis in infants due to hereditary syphilis is rare. He himself, with all his experience saw only twenty-three cases ("Syphilis," 1899, p. 239). Therefore it does not seem probable that ante-natal syphilis will be any more frequent. My cases showed a frequency of about 1 in 1,000 children examined for defective vision, and, further, presented no *obvious* signs of this disease. Syphilis, therefore, seems an unlikely cause of the iritis. What other causes of ante-natal iritis are there? In a report on 500 cases of iritis, Jennings and Hill (*Ophthalmology*, April, 1909, quoted by *American Encyc. of Ophthalm.*) give intrauterine inflammation as the cause in two cases. No hint is here given as to the cause of the intrauterine inflammation, but if syphilis be excluded one would be inclined to think that some form of toxaemia is the next most probable explanation of it.

PART II.

Since the foregoing was written, one of the Members of the Scottish Ophthalmological Club has made a suggestion as to aetiology. This suggestion demands a further argument.

(1.) It has been suggested that "most, if not all" of these seven cases may be cases of "quiet" iritis of infants. For confirmation of this I was referred to the work of the two Hutchinsons. Consequently I carefully re-read what J. Hutchinson, Senior, said in "Syphilis" (*v. supra*) and studied J. Hutchinson, Junior's article on "Quiet Iritis" (*Trans. Ophthal. Soc., of U.K.*, Vol. VIII). To my mind neither of these articles lends any particular support to the view that such cases as these are post-natal and syphilitic. There are certain facts *pro* and others *con*. The principal fact *pro* is that quiet iritis in infants may be overlooked owing to absence of obvious symptoms, and that the results of such iritis are not discovered till later on, as in such cases as these. *Con* we have (*a*) the great rarity of infantile iritis. Hutchinson, Sen., while holding the opinion that the cases

of infantile iritis may be overlooked, also says, " Yet in proof that, however carefully looked for, it is really very rare, I may mention that during seven years' practice at the Metropolitan Free Hospital I never treated a single case in connection with that Institution, although numbers of congenito-syphilitic patients presented themselves and I scrupulously looked at the eyes of all " (*loc. cit.*); (*b*) the relative freedom of the pupil in my cases. Compare what Hutchinson says: " Notwithstanding the ill-characterised phenomena of acute inflammation, the effusion of lymph is usually very free and the danger of occlusion of the pupil great " (*Ibidem*); (*c*) neither of the Hutchinsons, with their opportunities of observation and skill in the doing of it, have described, in the works referred to, the other characteristics of the type of case at present in question, and it is fair to assume that such characteristics were absent in their cases. In only one is there mention made by Hutchinson, Jun. (*loc. cit.*) of " white and brown opacities on the surface of the anterior capsule."

(2.) Cases to all intents and purposes identical with mine have been reported by Jessop (*Trans. Ophthal. Soc., U.K.*, Vol. VIII) and by Stephenson (*Ibidem*, Vol. XXX). In both of these the cause was stated as ante-natal. Jessop refers to " foetal iritis," and describes in the same case an iritic adhesion and a thread of persistent pupillary membrane, with " milk white " spots in the lens (*cf.* my case VI). Stephenson regards his case as " a rare type of persistent capsulo-pupillary membrane," and the description is almost identically that of several of my cases.

(3.) Lastly, and most importantly, there is the article by Cosmettatos, of Athens (*Ann. d'oculistique*, 1912, p. 241), entitled *" Des Restes congénitaux du segment antérieur de la tunique vasculaire du crystallin."* The author goes into the whole question of the varieties of persistent remains of the capsulo-pupillary and pupillary membranes, and explains them developmentally. The capsulo-pupillary membrane extends, during intra-uterine life, from the equator of the lens as far as that part which corresponds to the anterior extremity of the secondary optic vesicle. The pupillary membrane covers the part of the lens not covered by the secondary optic vesicle, and of which the central part later on forms the pupil. The author refers to the rarity of literary references to vestigia of the capsulo-pupillary membrane. Only eight cases were collected by Brückner, and Cosmettatos himself adds a few more, including one by S. Stephenson (*Ophthalmoscope*, May, 1908). This is what he says of their appearance:— " Vestigia of the capsulo-pupillary membrane are represented by little opacities in the form of dots, striae or spots of different sizes. Their colour is white, brown, or clear. They vary in number, and are situated at the periphery of the anterior capsule. But sometimes

the opacities occupy the pupillary region also. In this case we have a combined form of vestigia of the capsulo-pupillary and pupillary membranes." No doubt some of the appearances correspond to those described by myself, but a more important statement from the point of view of the question of the aetiology of my cases is the following. The author is speaking of vestigia of the pupillary membrane as distinct from the capsulo-pupillary membrane. " Membranous vestigia of the pupillary membrane which start from the pupil border seem to be very rare, according to Brückner, since this author has never been able to find a typical case. Nevertheless, there have been seen vestigia of the central part of the pupillary membrane which leave the posterior border of the pupil in the form of thin veil-like membranes or of membranous filaments, and portions of this membrane have also been seen occupying the pupil area partly or completely and attached to the capsule. According to Brückner these vestigia occur in connection with the border of the embryonic pupil before the formation of the pupil border proper (*bord pupillaire definitif*) which takes place after the eversion of the pigment layer of the iris on to the anterior layer (ectropion of the pigment layer of the iris). . . . The filaments which start from the pupil border are more common. They present the appearance of posterior synechiae of the iris, and are either inserted into the anterior capsule or float free in the pupil area. In the former case atropin does not dilate the pupil."

One could go on giving extracts from Cosmettatos on this interesting subject. I have, however, made sufficient reference to his work to emphasise the point that, after all, these seven cases may be purely developmental, every one of them. Until the advent of the two last cases (Nos. 6 and 7) in which the appearances suggested past iritis, I had no doubt about it. I am inclined to go farther, and, as it were, to carry the war into the enemy's camp by suggesting that some of the cases which, *faute de mieux*, have been described as " quiet iritis " are in reality cases of developmental vestigia.

As a last word I may make the remark that the occurrence of seven similar cases—or six if one excludes Case I—of this kind in 7,500 children is of sufficient significance to suggest that such cases should be carefully looked for and further studied, not only because of their inherent interest, but because it is important to distinguish cases of iritis or sequelae of iritis from congenital anomalies in the development of the iris and the anterior lens capsule.

THE COURSE OF THE GENICULO-CALCARINE VISUAL PATH IN RELATION TO THE TEMPORAL LOBE

BY

H. M. TRAQUAIR, M.D.

EDINBURGH

CLEAR and exact accounts of the anatomical course of the visual fibres between the external geniculate body and the calcarine cortex are lacking in most text books whether of anatomy, ophthalmology or neurology; as a rule it is merely stated that these fibres pass backwards around the posterior horn of the lateral ventricle into the occipital lobe forming the optic radiation. A detailed description is given by Henschen[1]:—From the external geniculate body the visual fibres pass outwards, then downwards, parallel with the lateral wall of the posterior ventricular horn where they form a compact bundle 5 to 10 mm. in vertical measurement. Then turning backwards they pass to the occipital lobe in a horizontal direction about the level of the second temporal convolution and second temporal sulcus. A section 6 to 7 cm. in front of the occipital pole shows the visual path as an enclosed bundle about 5 to 10 mm. in height and 2 to 3 mm. thick at the latero-ventral angle of the posterior horn. As the fibres pass backwards they approach the ventricle and spread out on its ventral aspect. In this bundle the dorsal retinal quadrants are represented by the dorsal, and the ventral retinal quadrants by the ventral fibres. Henschen points out that the term " optic radiation " (*Sehstralung*) is often too loosely used as if it referred to the whole of the sagittal marrow of the temporal, parietal and occipital lobes, whereas it is only the outer stratum of the ventral part of this formation which conveys visual impulses and therefore constitutes the visual path. In this pathway homonymous fibres lie together.

Another clear description, differing in important details from that of Henschen, is given by Meyer [2, 3], who regards the geniculo-calcarine visual path as consisting of three segments, dorsal, lateral, and ventral. Only the dorso-lateral fasciculi pass directly to the occipital cortex, the ventral fibres pass downwards and forwards into the uncinate region of the temporal lobe, making a long detour or " temporal loop " around the anterior horn of the lateral ventricle. The most ventral fibres pass farthest forwards and extend practically to the tip of the ventricular horn, around which they turn downwards and then backwards beneath the ventricle to the most anterior part of the inferior calcarine cortex. Meyer points out that lesions of the anterior part of the temporal lobe, if sufficiently deep, involve the most ventral bundle of the

optic radiation and therefore imply a defect in the upper quadrant of the visual field. In a recent paper by Cushing[4] this arrangement of the geniculo-calcarine fibres has been illustrated by drawings made from glass model reconstructions prepared by Meyer himself, and the accompanying figure represents diagrammatically the temporal detour. It will be seen that, according to this view, the visual fibres, on leaving the external geniculate body, do not form a compact bundle but spread out widely, especially in the vertical plane, while the presence of the ventral fasciculus so far forwards in the temporal lobe would obviously be of great importance in connection with the diagnosis of temporal lobe lesions since

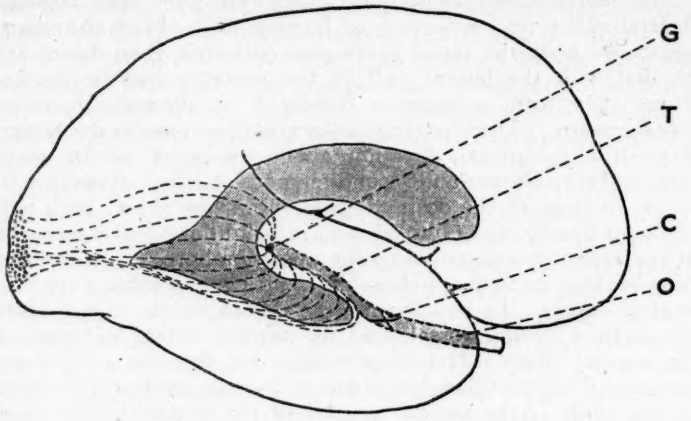


FIG. 1.

Diagrammatic representation of the geniculo-calcarine pathway according to Meyer Modified from Cushing (*loc. cit*).
G. geniculate body. T. Optic tract. C. chiasma. O. optic nerve.

interference at this part would produce homonymous hemianopsia varying in extent and intensity according to the nature of the lesion.

Cushing's paper deals with the perimetric evidence of temporal lobe lesions from the point of view of the field defects produced by interference with the geniculo-calcarine fibres, especially in their course through the temporal lobe. The first case[5] which drew attention to the subject was one observed in 1910, in which fits with symptoms indicative of uncinate origin were present. Some years previously the patient had been shot in the left eye, and the bullet was shown by a radiogram to be lodged in the petrous portion of the left temporal bone, having evidently traversed the lower part of the left temporal lobe. The field of vision of the

right eye showed no gross change, but Professor Meyer, happening to see the case, suggested that a few of the ventral visual fibres might have been damaged, and that a closer examination might elicit some defect. Re-examination demonstrated a narrow sector defect in the upper outer quadrant just outside the vertical meridian, extending downwards towards the central area, *i.e.*, in the position in which a limited lesion of the ventral crossed fibres of the right eye would naturally produce a field change. The presumption followed that had the left eye been present its field would have shown a corresponding homonymous alteration. This case will be referred to again later.

In the present series, out of 276 verified supratentorial tumours, 59 affected the temporal lobe. In 39 of these it was possible to examine the visual fields, and homonymous field defects indicating involvement of the temporal loop of the optic radiation were present in thirty-three instances. The six exceptions deserve careful consideration. Three were slow-growing endotheliomata, and one an angioma deforming the lobe from without. One was a dermoid cyst in the tip of the lobe associated with uncinate seizures. The sixth was a glioma in which, however, the perimetric evidence obtained was not regarded as complete.

In the thirty-three cases with demonstrated homonymous field defects the hemianopsia was complete in eight at the time of the first examination. None of these showed recovery of the field after operation, and it is suggested that in many or all of them the geniculate body may have been involved or the optic tract affected by pressure. In four of these eight cases the fixation point was bisected, in four it was spared during the time the cases were under observation.

In the remaining twenty-five cases partial homonymous hemianopsia of quadrantic type was present. These field defects fell into three classes: (1) stationary; (2) advancing towards complete hemianopsia; and (3) receding after successful operation.

Ten cases have been selected for the purpose of this paper, all belonging to the group of partial homonymous hemianopsias, and recorded with photographs and charts of the visual fields. The field changes exhibit characteristic and interesting features of which four stand out prominently.

(1.) The edge of the defect is sloping, *i.e.*, the transition from the seeing field to the blind area is gradual across a partially amblyopic zone, the grade varying in steepness in different cases and in different parts of the same field.

(2.) The defect is usually more marked on the side of the lesion, i.e., in the homolateral nasal field than in the heterolateral temporal field (eight out of ten). The cases thus exhibit incongruity in homonymous hemianopic fields in a pronounced degree.

(3.) Where the lesion is low the field defect is high and *vice versa*.

(4.) Recovery after successful operation is frequent.

Somewhat similar fields are illustrated from cases of fracture of the base of the skull and temporal lobe abscess.

This clinical evidence has a double interest in regard to two distinct though associated questions: firstly, in connection with the diagnosis of temporal lobe lesions; secondly, in relation to the course of the geniculo-calcarine visual path.

The bearing of these field changes on the diagnosis of temporal lobe lesions and particularly of tumours is fully dealt with in Professor Cushing's paper, and it is not the object of this review to discuss this aspect of their importance. Cushing and his assistants have brilliantly demonstrated the value of perimetry, especially of quantitative perimetry, in the localization of tumours in what has hitherto been regarded as one of the most silent areas of the brain. Although homonymous hemianopsia has long been recognized as a frequent accompaniment of temporal lobe lesions, both tumour and abscess, Cushing's study is the first in which this symptom has been adequately investigated by modern perimetric methods, and in which its frequency has been estimated and its indications pointed out.

The second question is:—What is the anatomical significance of these field changes; in other words, do they support the view that the geniculo-calcarine visual fibres form a loop in the temporal lobe as described by Meyer? Throughout the paper it is assumed that the hemianopsia is due to involvement of the optic radiation in the temporal lobe, although, as already mentioned, it is pointed out that in the *later* stages the geniculate body and the tract may be affected. The possibility of some other site of interference is not dealt with, and it is somewhat surprising that, except by one speaker (Spiller), this question was not referred to in the discussion when the paper was read at the American Neurological Association.

If we consider the first case quoted, in which a bullet injury of the lower part of the left temporal lobe was associated with a right upper outer field defect, it seems desirable to consider alternative possibilities before this result can be regarded as evidence of the presence of the visual path in that situation. There was a fracture of the base, possibly with some radiation, with haemorrhage and subsequent cicatrisation. Under these circumstances it is not at all improbable that the tract or chiasma was affected, and it is certainly difficult to exclude this explanation. The notch in the right field might equally well have represented one side of a bitemporal hemianopsia or of a homonymous hemianopsia of tract origin.

Up to the present, homonymous hemianopsia in connection with temporal lobe lesions has been attributed to tract interference or, if the lesion is deep enough, to interference with the external geniculate body or the anterior part of the optic radiation in its hitherto accepted position. In the absence of other guiding signs an indication as to the site of the visual block must be sought from an examination of the character of the field changes, which, in the present instance, seems to call for some explanation, and is too important to be neglected. The chief features of the defects have already been referred to. Of these the sloping edge, the relation of the position of the lesion to that of the defect, and the tendency to recovery after operation are all compatible with a supra-geniculate site of interference. On the other hand, the most prominent and most significant feature, the incongruity, speaks strongly for subgeniculate, i.e., tract interference.

Incongruity in homonymous hemianopic fields has been the subject of considerable attention and thought amongst ophthalmologists. It is discussed by Wilbrand[7], and has been ably reviewed by Roenne[8], who points out that its localizing value was first drawn attention to by Bjerrum in 1892. Its significance was also independently appreciated by Schirmer[9]. Of the various causes of incongruity there is only one which could produce it so consistently in a series of cases as in those under review, and that is the incidence of the interference at a point in the visual pathway where fibres from corresponding retinal points—or minute retinal areas—have not yet come to lie together. We must, therefore, believe that in temporal lobe lesions the visual block takes place below the geniculate body, or, that in the optic radiation, at least in its anterior part, fibres from corresponding retinal points do not lie in juxtaposition.

The point at which the homologous fibres come together is not known with certainty; Roenne believes that the rearrangement is frequently completed in the lower part of the tract, while according to Henschen, " as far as we know," it takes place at the geniculate body. No observer has hitherto suggested that the separation persists above this level, though Roenne concludes, rather reluctantly, that small irregularities of arrangement may exist in individual cases, affecting, however, only a narrow zone along the vertical meridian of the field. If the fields depicted are to be regarded as evidence that the visual pathway is affected in the temporal lobe they must also be held to show that the homologous retinal fibres are separate at this level. In this case, since the uncrossed fibres are so frequently first and more severely affected, it must be supposed that the crossed fibres occupy a situation relatively less exposed to interference by tumours in their usual position in the substance of the lobe, and that the cases with early

contralateral field changes are associated with tumours in different and less common sites. Evidence on this point would be of interest.

If homologous retinal fibres do not lie together in the anterior part of the optic radiation they must become associated at some more posterior point, for clinical evidence indicates that they do come together. On this reasoning the more posterior the interference the less the incongruity should be in the fields. Again, if the most ventral fibres extend most anteriorly in the temporal loop in the way shown in the diagrams, the most anterior tumours whether high or low should produce field defects limited to the periphery of the upper field quadrants. Whether these relationships occur frequently can hardly be estimated from the ten cases reported, but in any case they would be capable of another explanation. It is the anterior part of the temporal lobe which lies most directly beneath the tract, in which homologous fibres lie more or less separate, and a swelling of the posterior part of the lobe would be more likely to affect the termination of the tract or even the geniculate body and the beginning of the radiation, in which homologous fibres are believed to lie together.

Other interesting questions arise in this connection which, however, cannot be usefully discussed in the absence of details of a larger number of cases.

A very striking feature of the fields is the close resemblance they show to those of tract hemianopsia due to pituitary tumour, our knowledge of which we chiefly owe also to Walker and Cushing[10]. Here the crossed fibres are usually affected first, so that the contralateral field shows the greater defect, but, as these authors have shown, it may be otherwise. The only difference in the field changes is the rather greater frequency of central scotoma in the pituitary cases. The present writer believes that central scotoma in such cases indicates the acuity of pressure rather than the site, and depends upon the impairment of the vascular supply to the macular bundle. Thus, in chronic acromegalies with very slowly growing tumours, central scotoma is usually absent, while with moderately rapid or aggressive growth this feature is more prominent, and especially so in inflammatory conditions. No significance, then, as to the site of interference can be attached to the absence of central scotoma in a case of slowly growing temporal lobe tumour. In this connection it may be noted that in the two cases of traumatic homonymous hemianopsia recorded the defects are scotomatous in type.

The presence of papilloedema shows that the optic nerve sheath is open, and is, therefore, against pituitary tumour, but it does not otherwise indicate the site of interference. The hemianopic pupillary reaction is usually absent or indefinite in relative hemianopsias, but

it is of interest to note that it is present in complete hemianopsia in temporal lobe cases, showing clearly that the tract does become affected. Post-mortem records show that compression of the tracts has been frequently found in cases of temporal lobe tumour (Willbrand and Saenger[7]), and in the early stages of this process relative hemianopsia with incongruity would be produced. There appears to be no reason to suppose that compression of the tract occurs only in the more advanced stages of enlargement of the temporal lobe, especially when we remember how closely the uncus and hippocampal gyrus are applied to its lower outer side, the part in which the uncrossed fibres are contained. The recorded charts show that incongruity may be pronounced in early cases. In the case of a sufficiently large growth both sub- and supra-geniculate interference might, of course, be present, and it would be impossible to separate the symptoms by perimetry.

As minor points we may note the recovery of the fields after operation as indicating that the visual path was compressed, but not invaded by the tumour, and also that the operative measures produced no permanent damage, features which seem to favour tract compression, though not necessarily incompatible with supra-geniculate interference by an encapsulated growth; and also the absence of hemianopsia in six cases, mostly slowly advancing, which falls into line with what we know of the reaction of the chiasma and tracts to slowly growing pituitary tumours. The extreme restriction of the field which was present in several cases on the side of the lesion may be explained by oedema of the optic nerves of some duration, which also causes the peripheral restriction—in reality general depression—of the opposite field whether hemianopic or not. The term " tubular " is only applicable to fields whose linear diameter remains the same for the same visual angle at any distance. Such fields are necessarily always of psychical origin.

An interesting feature is present in the fields of two of the recorded cases, Nos. 6 and 10. In the first, a left hemianopsia, the fixation point in the left field is included in the defective half field, like a reversed sparing of the macula, central vision being 20/50, while the right eye with bisected fixation point had V. = 20/20. There was severe papilloedema and a rapidly growing and ultimately extensive right-sided glioma. In the second case, a right superior quadrant hemianopsia due to a meningeal endothelioma of the left temporal fossa, the field of the left eye showed considerable general restriction and an arcuate defect* of

* Arcuate defects in papilloedema are rare. Roenne has seen several cases and ascribes the defect to an accidentally specially severe implication of a fibre bundle at the disc margin. (*Arch. f. Augenheilk.*, Vol. LXVI, Part 3-4, p. 191, 1913. Von Szily describes a case in which this was probably a complication (*Klin. Monatsbl. f. Augenheilk*, Vol. LI, p. 196, February, 1913).

the nerve fibre bundle of Bjerrum type curving from the blind spot below the fixation point and up into the upper nasal quadrant which was deeply indented. V. = 10/50. The right field showed a very slight upper outer notch. V. = 10/10. Bilateral papilloedema. Thus, in these two cases the hemianopsia was impure.

In the first case either the central uncrossed fibres of the left eye had become affected—an explanation which seems unlikely—or, more probably, the central failure was due to a macular complication depending on the papilloedema. In the second, however, the curved defect crossing the vertical meridian provides a sure indication of involvement of the optic nerve, and this, together with the reduction in central vision and the peripheral restriction of the temporal field, suggests that the site, or at least *a* site, of interference was at or near the chiasmal termination of the left optic nerve.

Looking at the question from the opposite point of view, we can find no evidence against tract interference and in favour of supra-geniculate involvement of the visual fibres in the lower and anterior part of the temporal lobe. Congruity of the defects, in time, extent, and intensity, would be required, or evidence of homonymous hemianopsia, in a lesion of the anterior part of the temporal lobe under conditions which would exclude the probability of sub-geniculate interference. Unfortunately such a lesion must be rare in clinical experience.

The solution of the problem rests on the correct interpretation of perimetric evidence based on the anatomy—in the widest sense—of the visual pathway and on the mechanism of production of field changes by tumour pressure. The essential factor in this process is, in the present belief of the writer, vascular nutritional impairment. It is this which enables a rounded surface like that of a pituitary tumour or the inner side of the temporal lobe, by producing a local ischaemia at the point of pressure incidence on the chiasma or tract, to give rise to a field defect with sloping edges which recovers with great rapidity if the pressure can be relieved before actual atrophy has resulted. This explanation is offered with full appreciation of the difficulty of proof, but some help may be obtained from the clinical study of certain tumours and other lesions affecting the spinal cord.

As regards the temporal lobe it is to be hoped that more records will be published with minute details, so that the exact position of the lesion may be compared with the field changes ascertained by careful quantitative perimetry in a large number of cases. The value of this method in the diagnosis of temporal lobe lesions has been fully established by Professor Cushing. As regards the site

of interference the perimetric evidence at present available indicates the optic tract rather than a temporal detour of the geniculo-calcarine fibres.

REFERENCES

1. **Henschen.**—" Handbuch der Neurologie." Lewandowsky, Berlin, 1910, Vol. I, p. 903-914, Vol. III, p. 773 *et seq.*
2. **Meyer, A.**—" The connections of the Occipital Lobes and the present status of the Cerebral Visual Affections." *Trans. of the Assoc. of Amer. Physicians*, 1907, Vol. XXII, p. 7.
3. **Idem.**—American Neurological Association, 1911.
4. **Cushing.**—" The Field Defects produced by Temporal Lobe Lesions." *Trans. Amer. Neurol. Soc.*, 1921, and *Brain*, Vol. XLIV, p. 341. 1921.
5. **Cushing and Heuer.**—" Distortions of the Visual Fields in Cases of Brain Tumour." *Johns Hopkins Hosp. Bulletin*, June, 1911, Vol. XXII, p. 190.
6. Discussion on Professor Cushing's paper on " The Field Defects of Temporal Lobe Lesions." *Trans. Amer. Neurol. Assoc.*, June, 1921.
7. **Wilbrand and Saenger.**—" Die Neurologie des Auges," 1917, Vol. VII, p. 152, *et seq.*
8. **Roenne.**—" Ueber die Inkongruenz und Asymmetrie im homonym hemianopischen Gesichtsfeld." *Klin. Monatsbl. f. Augenheilk.*, 1915, Vol. LIV, p. 399.
9. **Schirmer.**—" A Case of Incongruous Homonymous Hemianopsia." *Arch. of Ophthal.*, 1912, No. 2, Vol. XLI, p. 136.
10. **Walker and Cushing.**—" Chiasmal Lesions with especial reference to Homonymous Hemianopsia with Hypophyseal Tumour." *Arch. of Ophthal.*, 1918, No. 2, Vol. XLVII, p. 124.

A CASE OF QUININE AMBLYOPIA

BY

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A. C., age 41, a chauffeur, was discharged from his employment. At 3 a.m. one morning soon after, while under the influence of drink, he swallowed the remaining contents of a bottle of 5 grain quinine tablets, taking probably about 60 grains. He thought he had a malarial relapse, but he had not had such for a long time, and this was the first dose of quinine he had taken for three years. Possibly there was suicidal intent. He fell asleep again, but a few hours later awakened, feeling considerable distress and giddiness, and within three hours he had lost his sight. He had considerable nausea and vomited slightly, but there were no subjective auditory sensations.

On examination by one of us (R. G.) eight hours after he had taken the drug, he was found lying in bed; the respiration was quick and shallow, but his colour fairly good; the pulse was rapid, thready and irregular, and the rate was 120. His sight was gone, he being only just able to distinguish light from dark, but not being able to point to the direction of the light. The pupils were fixed and dilated. The fundi were pale and hazy, the arteries much

contracted and the discs pale. There was no deafness and no tinnitus, and though he said he was giddy on sitting up, there was no true aural vertigo.

He was sent up to hospital immediately, and on admission was given amyl nitrite inhalation and sodium nitrite gr. ij. Mr. R. R. James saw him two hours later and reported, "The arteries are normal. L.O.D. slight pallor inner side; R.O.D. normal. Pupils mid-dilated; right flickers to strong light, left inactive to light."

Recovery was very rapid. In the evening he could distinguish windows, shadows, etc., and by the following morning his sight was apparently normal. Two days after taking the quinine his visual fields showed no contraction, and his fundi were normal. Nor was his sight in any way deficient two months later.

The Wassermann reaction was negative.

The taking of quinine was confirmed by finding it in the urine.

The interesting features of this case were the absence of auditory symptoms and the complete recovery so soon after treatment by the nitrites.

We are indebted to Dr. F. Golla and to Mr. R. R. James for permission to publish this case.

AN UNUSUAL CASE OF PERFORATING WOUND OF THE CORNEA

BY

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MRS. B., age 31, was mending the fire on January 27, 1921, when, through some mishap, the poker slipped and fractured the left lens of her spectacles. Realising that something serious had happened to her left eye she at once saw Dr. Shaw, of Cleckheaton, who sent her to see me without delay.

On examination two separate perforating wounds of the cornea were present; the one lacerated, situated in the two o'clock position, was in the form of a triangular flap of cornea attached by its base to the limbus and extending into the cornea downwards and slightly outwards for about three millimetres. This tongue-shaped flap was freely movable, projected above the corneal surface and looked much like a fragment of glass; the iris was freely exposed, but was not protruding from the wound. The second perforation was exactly opposite the first, and was placed at the inferior margin of the cornea, it traversed the limbus at right angles for about two millimetres and was occupied by prolapsed iris. Fortunately the ciliary body, lens and vitreous were intact. As a

further complication the conjunctiva in the vicinity of the upper wound was extensively contaminated by coal dust.

Although any attempt to save the eye appeared under the circumstances to be doomed to failure, no harm could be done in making the effort, and the first thing therefore was to excise all prolapsed iris. The next step was to dissect up the conjunctiva all round the globe, and having sufficiently undermined it to cover the whole cornea with the flap thus formed, bringing the cut edges together without any tension with three mattress sutures. Atropin ointment was finally introduced, and the eyes closed by a binocular pad. The operation was done under cocaine, and the patient's behaviour was exemplary. Little or no reaction followed, the eye was dressed once daily, and, in addition to the atropin, drops of acriflavine (1/1,500) were instilled. Recovery was uneventful, the stitches gradually came away, the conjunctiva resumed its normal position, and on February 8 a single pad was substituted for the binocular, and the patient allowed up. Two days afterwards dark glasses were ordered.

On February 11, i.e., twelve days after the accident, the condition was as follows:—Right eye healthy, vision 6/18 with -1.00 D. sph. 6/6. Left eye, lens clear, fundus normal, pupil fully dilated, eye free from redness. The inferior wound is healed, the upper cut edge of the iris being, however, adherent to the cornea at this point. The superior wound is entirely covered by adherent conjunctiva, which extends on to the cornea as far as the original apex of the lacerated flap. This wound also is perfectly healed and free from redness. Above it is a crescent-shaped area of conjunctiva heavily peppered with granules of coal dust. The iris is adherent to the cornea in the neighbourhood of the wound, but is not incarcerated. On inspecting the eye on this occasion quite a large fragment of glass, about 3 mm. long by 1 mm. broad, was found free in the lower cul-de-sac. The patient had complained of slight discomfort for a day or two, but nothing had been seen to account for it. She was discharged from hospital on February 14.

I saw her again on March 9 last. The eye had entirely recovered. The pupil was somewhat pear-shaped, with its apex down and out. Vision, with -2.00 D. cyl. ax. 95° was 6/6 (3).

The most interesting feature of the above case lies in the fact that two separate perforating wounds of the cornea were inflicted, which is unique so far as my own personal experience goes, and one of these wounds was of such a serious character as to threaten the eye with total loss. The amount of vision restored, too, is, I think, very exceptional.

The successful result may be attributed, in my opinion, to the following factors:—(1) The lens, ciliary body and vitreous were intact; (2) the wounds were promptly protected by a conjunctival

dressing; and (3) it is possible that the acriflavine drops, as recommended by Lawson, played some part in keeping the eye aseptic, because, as has been pointed out, the conjunctiva was extensively soiled.

REFERENCE

Lawson, A.—*Trans. Ophth. Soc.*, 1919.

ANNOTATIONS

Report on Miners' Nystagmus

We have been furnished with an advance copy of the First Report of the Miners' Nystagmus Committee, which was appointed in 1920 by the Medical Research Council at the request of the Home Office, and upon the recommendation of the Miners' Lamps Committee, to investigate the Cause and Means of Prevention of Miners' Nystagmus. The present Report comprises the reports of Dr. T. Lister Llewellyn and Dr. W. H. R. Rivers, a further report by Mr. G. H. Pooley on the relation of errors of refraction to miners' nystagmus being in course of preparation. Dr. Llewellyn has clinically examined 2,000 cases from the different coalfields of the Kingdom, while the psycho-neurotic factors have been studied by Dr. W. H. Eddison and embodied in Dr. Rivers' report. The working conditions have been investigated, and photo- metric tests of great importance have been made by Dr. Llewellyn.

It is interesting to learn that defective illumination, which has lately tended to displace other theories of causation, is adopted by this Committee as the essential factor in the causation of the disease. Other factors, such as position, alcoholism, hereditary predisposition and errors of refraction are considered to be merely of secondary importance. The causes of this defective illumination are partly the initial low illuminating power of safety lamps, partly the gradual failure of batteries, the accumulation of coal dust about the lamps, the distance of the lamps from the work, and so forth.

The Committee find that workers at the coal face are more affected (81.5 per cent. of all the cases) than other underground workers, due to the unrelieved blackness of the coal and the greater need for accurate vision. Of the large proportion of miners who show signs of nystagmus, only a small proportion become incapacitated for work underground. The Committee naturally recommend that various steps should be taken to improve the illumination not only by increasing the power of the lamps, but also by increasing the amount of reflected light by whitewashing and otherwise treating parts of the pit other than the actual coal

face, and they believe that by doing this miners' nystagmus can by degrees be entirely prevented.

It would occupy rather much space were we to analyse this valuable report in every detail. The major portion of it is from the pen of Dr. Llewellyn, and we may select from it the points which may be less well known to the medical profession. Thus we may omit reference to the historical survey which seems very complete, to the incidence of the disease, and to its description, and pass on to the chapter dealing with the aetiological factors. The first of these is attention paid to the disease. The following paragraph is noteworthy:—" Mr. Gillhespy, General Manager of the Yorkshire Coal Owners' Mutual Indemnity Company, in his evidence before the Workmen's Compensation Committee in 1919, stated that an examination of a typical Yorkshire pit employing 2,000 men, by Dr. Moxon, showed that 25 per cent. to 38 per cent. (according to the grade of employment) of all men over the age of 21 working underground showed oscillation of the eyes. Every one of these men could obtain a certifying surgeon's certificate and be legally disabled. In the great majority of cases the oscillation of the eyes produces no incapacity, and should not in itself entitle the man to compensation. Mr. Gillhespy says that the result of the scheduling of the disease has been to increase the incidence from 30 in 1907 to 515 in 1918." Compensation accounts for the difference. But, as is pointed out, this evidence must be read in the light of Dr. Rivers' report:—" It is quite certain that compensation has not increased the prevalence of nystagmus in the strict sense. It is solely through its action upon the psychical and psycho-neurotic aspects of the disorder that the increased frequency of disability has come about." The second aetiological factor is occupation (working at the coal face) reference to which has already been made. The third is the method of work, holing in particular, the operation of which, as a cause of the disease, has been blamed. Apparently Llewellyn minimizes the method of work as a cause of nystagmus. Of the 2,000 cases investigated, 1,510 are classed as " colliers." Of these 466 had done much holing, 484 some holing, while 560 had done little or no holing. Of the whole 2,000 cases, over 50 per cent. had done little or no holing. Further, holing is common in the thin seams where naked lights are used and nystagmus is rare, whereas in the thicker seams of the safety lamp pits holing is less frequently carried out and nystagmus is common. Passing over " colliery factors " as an aetiological factor not apparently of great importance, we come to the subject of illumination, the fifth factor. This is a long and statistical section of the Report. The first part of the section tends to show the difference in incidence of the disease in " candle " pits and " lamp " pits to the disadvantage of the latter. The

second part gives numerous photometric data. Thus, at the coal face of a candle pit in Warwickshire the illumination was 0.145 foot candle, while in a safety-lamp pit in South Wales it was 0.01 foot candle. Again, certain oil lamps tested give 0.60 candle power when clean and only 0.48 after use. Electric lamps gave higher candle-power, but the falling off after use was greater. A large number of comparative tests were made with electric cap lamps, standard electric lamps, combustion tube lamps, and the ordinary pattern oil lamp. The readings show that the cap lamp often gives from 10 to 20 times more illumination on the working area than an oil or electric lamp (presumably a standard electric lamp). This is due to the fact that the cap lamp is much nearer to the working face. A collier may place an ordinary lamp behind him at a distance of 9 feet from the working face, while his body and the swinging pick obstruct the light, so that the average light falling on the coal face may be less than 1-100th of a foot candle. The cap lamp at 2 feet would give 20 times the light, and that without shadows or interruption. Surface brightness is next dealt with, and it is mentioned that the average illumination of the coal face is only 0.018 to 0.09 foot candle. Whitewashing the main roads, so increasing their illumination, minimizes "the discomfort which follows the sudden plunge into the darkness of the workings." But at the working surface there may be only a reflection of from 5 to 16 per cent. of the incident light. There is evidence to show that nystagmus is more common in the case of the former figure than in that of the latter. The illumination at the face also varies with the composition of the air. The light of a safety lamp diminishes 35 per cent. for every 1 per cent. diminution of oxygen. Some experiments with light filters were carried out, but these do not seem to have been conclusive. In dealing with the results of improved illumination an interesting table is given which shows the relation of nystagmus to illumination in two pits in the Rhymney Valley, the one a candle pit and the other a safety-lamp pit. In the candle pit the percentage of nystagmus was 1.0, and the average illumination at the coal face 0.09 foot candle. In the safety-lamp pit nystagmus was 6.3 per cent., and the illumination 0.018 foot-candle.

The sixth aetiological factor is "mine gases." This section is by Dr. J. S. Haldane. It may be summarized by stating that neither excess of CO_2, nor the presence of fire-damp (methane), nor yet the presence of carbon monoxide can be held responsible for miners' nystagmus. While it is true that the last-named has been found to produce irregular oscillations of the eyeballs in acute poisoning by the gas, such oscillations are not the same as the rotatory form characteristic of miners' nystagmus. All that is admitted as to alcohol, the seventh possible aetiological factor, is

that, other things being equal, the prognosis in an alcoholic is not so good as in an ordinary individual. Personal factors come next. These are age, accident, hereditary predisposition, error of refraction and colouring. Regarding age, the average at the time of failure in the present series of cases was 42.3 years. Accident, such as injury to the cornea or to the head, shock and acute illness, are frequently followed by the appearance of symptoms of miners' nystagmus. Several instances have occurred of hereditary predisposition. In 71.5 per cent. of all cases examined there was error of refraction. This part of the Report is apparently not yet complete, since a report on the subject is yet to come, by Mr. Pooley. Regarding colouring there has been a preponderance of cases among fair blue-eyed individuals. This is not further discussed. 1,078 individuals had blue or grey eyes, while in 922 the colour of the eyes was light or dark brown.

Passing from aetiology, the next chapter concerns diagnosis. Hints are given regarding methods of ascertaining the presence of the disease and regarding malingering.

The principal statement in the chapter on prognosis is that all physical signs and symptoms are usually lost, except in cases with a marked psychical element, after the man has left the pit for two years.

The eighth chapter is on treatment. In the early stages of the disease change of work from the coal face and, if symptoms continue, surface work should be recommended. The results of the use of anti-glare glasses are not conclusive. Errors of refraction should be corrected. A warning is given against telling a workman that he must never go down the pit again, unless he wishes to become blind. Such a statement destroys confidence in the curability of a disease which is not incurable. "No man loses his sight from nystagmus." The question of work in relation to compensation is referred to, but this difficult question is not fully discussed.

The final chapter of this Report, on psycho-neurotic symptoms associated with miners' nystagmus, is written by Dr. Rivers, and is largely based on the work of Dr. H. W. Eddison, who was appointed to carry out this part of the enquiry. It is very difficult to synopsize. It is pointed out that such symptoms as giddiness, photophobia and headaches can be ascribed to the disordered eye movements, but that no such direct relation is to be discerned between the state of the eyes and such symptoms as general tremor, habitual rapidity of heart, excessive sweating, abnormal anxiety, depression, forebodings, apprehensions and disturbing dreams. These symptoms, psycho-neurosis, are of exactly the same kind as those which occur in other nervous and mental disorders. We gather that the first step in the development of psycho-neurosis in

the miner is apprehension of danger; due to difficulty of fixation. Along with this there is dazzling and blepharospasm. An "anxiety neurosis" may develop in two directions. In one the prominent symptoms are disordered heart action, excessive sweating, dilated pupils and irritability and lack of concentration. In the other, the symptoms are more purely mental, and include irritability, depression, forebodings, apprehensions and disturbed sleep. It is reported by Dr. Eddison that there are two main varieties of the affection as a whole (that is of the disease known as miners' nystagmus), namely, a group beginning with nystagmus and followed by an anxiety state, and a group in which the psycho-neurotic symptoms are primary. In these cases nystagmus may not be present at all times.

In some cases then "the state known as miners' nystagmus may be a psycho-neurosis arising independently of any disorder of eye movements or of vision, while in others the psycho-neurotic aspect of the disease, though secondary to nystagmus proper, has come to be the more important part of the disease." After referring to the fact that in most psycho-neuroses some special experience serves as a nucleus round which other symptoms tend to centre, the Report goes on to say:—"Through the prevalence of nystagmus the miner is provided with such a nucleus for his psycho-neurotic symptoms. . . . The mechanism of the production of psycho-neurosis secondary to miners' nystagmus makes it clear why compensation should have produced so great an increase in the number of those in whom nystagmus has produced a disability to work. . . . Through the fact and prevalence of compensation nystagmus has become so familiar to the miner that it is at once seized upon as the cause of any aches, pains, or other disturbances of the normal course of his life, and provides a nucleus for psycho-neurotic troubles."

We may conclude this somewhat lengthy analysis of a most important Report by saying that as in the body of the Report defective illumination is considered to be the essential cause of miners' nystagmus, so at the end of it improvement in illumination is considered to be the preventive, not only of nystagmus itself, but, by lessening the tendency to apprehension and consequent repression, of those cases of psycho-neurosis in which nystagmus is absent.

On the value of Good Lighting in preventing Industrial Accidents, and increasing Production

In the address delivered before the Illuminating Engineering Society on Tuesday, February 28, Mr. Leon Gaster (Hon. Secretary of the Society) drew attention to the importance of good lighting in factories, as an essential to the health and safety of

workers, and as a condition of efficient and rapid work. Experience had shown that there was a close connection between the prevalence of accidents and the lighting conditions, and tests indicated that improvements in lighting led to considerable advances in output, and diminution of spoiled work. Generally speaking, the cost of lighting formed only a very small proportion, usually less than one per cent. of the costs of production. Expenditure to secure proper lighting was, therefore, a good investment and should be regarded as a national asset.

Ideal requirements should enable work to proceed at night with the same ease and safety as in good daylight. The necessary conditions had been admirably summarized in the reports issued by the Home Office Departmental Committee on Lighting in Factories and Workshops. The Home Office had for a number of years taken a great interest in industrial lighting, and in this respect this country was in advance of the rest of Europe. In discussing legislative requirements, Mr. Gaster pointed out the necessity for the framing of general lighting recommendations, which could readily be carried out, and would be of great benefit both to employers and workers.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM

THE Tenth Annual Congress was held in London on May 11, 12, and 13, 1922, and was well attended. The proceedings were conducted by the President, Mr. J. Herbert Fisher, who, at the opening session at 1, Wimpole Street, presented the Edward Nettleship Prize to Dr. H. Moss Traquair, of Edinburgh. As the President remarked, Dr. Traquair's original work on perimetry, especially with regard to pituitary disease, is well known, and has laid a sure foundation for future investigation.

Mr. MAYOU described the various types of corneal ulceration met with as a result of ophthalmia neonatorum, and advised that no operation should be undertaken for small punctured ulcers with iris inclusion. Larger perforations, however, might require iridectomy for optical purposes; he considered that it should be done upwards rather than downwards to avoid dazzling from the coloboma. He also suggested that the incision for the iridectomy should be made at the scar in the corneal centre, as it is easier to tear away a bit of iris from the periphery than from the leucoma. Such an operation should be postponed until the child has been weaned.

Mr. Mayou's second paper brought forward evidence suggesting that the *B. Xerosis* is probably a strain of Hoffmann's bacillus, an inhabitant of the vagina.

Mr. FOSTER MOORE described his investigations on the intra-ocular tension in thrombosis of the retinal veins, from measurements taken by the Schiötz tonometer. He dealt with thirty-seven patients, in eighteen of whom the central vein was affected, whilst in the remainder only a branch tributary was involved. He found that in cases in whom secondary glaucoma did not arise, the tension was lower in the affected eye than in its fellow, but that this was reversed in cases in which acute glaucoma later supervened.

Mr. T. HARRISON BUTLER evoked a spirited discussion by his paper on the estimation of refraction without the use of a mydriatic; some ten members joined in the fray, but arrived at no unanimous conclusion. Professor Gullstrand was warmly welcomed by the meeting, and made some observations on retinoscopy; he pointed out that a glass mirror has an advantage over a silvered one, in that no shadow of the hole can occur, but a slit-lamp must be used in order to obtain sufficient illumination. Using a silvered mirror, both the source of light and the mirror hole should be small.

Mr. WILLIAMSON-NOBLE gave a pathological report on two cases of intra-ocular cholesterin formations simulating neoplasm, one of which had an extension through the posterior part of the sclera.

Mr. HUMPHREY NEAME contributed a paper describing experiments with novarseno-benzol in rabbits. After intravenous injection no arsenic was found in the aqueous humour, but was recovered from liver and muscle.

The set discussion in the afternoon on " Industrial Diseases of the Eye " was limited by the exclusion of accidents, miners' nystagmus and glassblowers' cataract.

Dr. T. M. LEGGE, C.B.E., His Majesty's Medical Inspector of Factories, accepted the Council's invitation and made the first opening speech. He mentioned the conjunctivitis with oedema of the lids caused in workers of phosphorus sesquisulphide by the fumes of sulphuretted hydrogen. Optic neuritis from lead poisoning is still seen in house and shop painters, and in plumbers, but its incidence with other signs of plumbism had been very markedly reduced before the war (1900-1914) in white lead workers in potteries, etc., by improved methods of ventilation. He showed photographs demonstrating the suction fans and pipes which draw the lead-laden air from the workers' boxes. Similar measures were taken during the war to prevent amblyopia caused by dinitrobenzene, and poisoning by T.N.T.

The speaker next referred to the high mortality of anthrax in the eyelid, in the days before the introduction of Sclavo's serum,

and attributed this to the looseness of the cellular tissues in this region.

Mr. BERNARD CRIDLAND contributed an opening paper in which he dealt mainly with industrial cataract allied to that found in glassblowers, namely, cataract in puddlers, chainmakers and millmen. He also described a condition (from a paper which is to be published later by Fison) of amblyopia in stokers, with no fundus changes, but with visual acuity reduced to below 6/18. He finally referred to the dense leucomata left after sprinkling of the cornea by tar.

Prof. EDGAR COLLIS dealt with visual acuity and vocational selection, and laid stress on the importance of the former in deciding the latter. He referred to defective vision as the cause of many motor and industrial accidents, and advised that visual tests should be applied to those responsible.

Mr. BISHOP HARMAN exhibited statistics showing that myopes of over 3 D. were more liable to " breakdowns " and damage to the eyes if they applied themselves to occupations involving continuous close work, than if they did ordinary work.

Mr. C. KILLICK described cases and showed some excellent drawings of anthrax affecting the eyelids.

Mr. J. J. HEALY threw doubt on heat as the direct cause of some of the lens opacities seen in tin-plate workers. In some cases the opacity starts behind the iris in the lower part of the lens, and he considered it more likely that heat has a deleterious effect on the secretory epithelium of the ciliary body, and so indirectly on the nutrition of the lens.

Mr. BRINTON described cases of cataract in gold smelters and in assayers which he had encountered in the Transvaal, evidently of the same type as that met with in glassblowers in this country. These men are exposed to excessive heat in their work.

On Friday, May 12, Mr. BISHOP HARMAN spoke of a green-tinted glass called Delhi glass, a copy from an old pair of spectacles discovered in Delhi. He showed photographs of spectra from various types of glass, and considered that Delhi glass cut off the ultra-violet and infra-red rays, and also diminished glare. Mr. GARDINER, of the Röntgen Society, spoke on the manufacture of Crookes' glass, and a discussion followed on the difficulty of getting workmen to wear protective goggles. Mr. J. J. HEALY thought that a good deal might be done by educating the younger men in this regard, but that the older ones were incorrigible.

Mr. J. F. CUNNINGHAM presented what was mainly a statistical paper on interstitial keratitis, which had been initiated by the late Mr. Nettleship. He raised the question of injury as exciting the attack in the first eye, and several similar cases were quoted by members in the discussion. As the question of workmen's com-

pensation is important in such cases, the President suggested that surgeons should send details of any definite examples to Mr. Cunningham and the latter agreed to receive them and make a report. It is hoped that ophthalmologists will act on this suggestion. Mr. Holmes Spicer said that amongst 700 cases of this disease 3 per cent. followed an injury, and thought that the spirochaete must be reaching maturity at the time in the corneal or scleral tissues.

Mr. M. L. HINE gave a pathological demonstration of an extradural tumour of the optic nerve, which was considered to be of the nature of a neuro-fibromatosis.

Mr. P. J. HAY read a paper on concomitant squint, and considered that the infectious fevers, especially measles, play a large part in its incidence, possibly by an action upon a brain centre controlling the sixth nerves, the hypothetical divergence centre.

Mr. BASIL GRAVES described some white spots seen on the anterior lens capsule after abscission of iris for traumatic prolapse, and discussed their aetiology.

On the Friday afternoon, a goodly number of members enjoyed the hospitality of St. Bartholomew's Hospital, and under the guidance of the ophthalmic surgeons of the hospital inspected the famous Great Hall, the Museum, and the ophthalmic departments.

Mr. C. I. GRAHAM showed some eight cases illustrating the results of West's operation for dacryocystitis, which in his hands had been very successful; he laid stress on the importance of introducing a wire through the canaliculus and the new aperture in the nose, and leaving it *in situ* for some weeks.

Many other cases of interest were shown and discussed, including one by Mr. Holmes Spicer of a recurrent growth in the orbit, from which an endothelioma has been removed twenty years previously, and another by Mr. Paton of a conjugate deviation of the eyes with Fovelle's syndrome, on the anatomy of which both the exhibitor and Dr. Gordon Holmes gave an elaborate demonstration.

On Friday evening a new departure was initiated in an epidiascope demonstration of tuberculosis of the eye, which, to the listeners was very acceptable after the labours of the day. Dr. Maitland Ramsay showed coloured drawings of clinical cases, and Professor Eyre exhibited drawings of conjunctival tubercle in its various types. The other exhibitors mainly confined themselves to the pathological side, the chief contributors being Sir John Parsons and Mr. Mayou.

On the last day of the Congress, Mr. M. H. WHITING reported a pathological speciment of an innocent hyperplasia of the unpigmented epithelium of the ciliary body, and compared it to similar growths found in the cerebral choroidal plexuses.

Mr. PATON demonstrated some coloured sketches of the ophthalmoscopic appearances in various stages of papilloedema, and in answer to questions stated that a decompression operation is unlikely to arrest an atrophy of the nerve, if the arteries have begun to narrow, or if the disc shows any white opalescence.

Mr. JOHNSON TAYLOR brought forward a suggestion for the management of the flap in the trephine operation for glaucoma. This was to the effect that it should be rolled up on the whittled end of a large wooden match which had been sterilised by boiling until it sank.

Mr. HARRISON BUTLER discussed the *pros* and *cons* of the extraction of cataract with a conjunctival bridge; his conclusions were against the operation, but he thought it might be indicated in " squeezers " and in cases where a general anaesthetic was necessary. Mr. Cridland said he was a strong advocate of the operation, but advised the use of a very narrow bridge of conjunctiva.

Mr. G. F. ALEXANDER read a paper on the difficulties of cataract extraction.

Miss MANN and Mr. JULER reported a congenital anomaly of the optic disc, which appeared to be an example of the formation of pigment epithelium and abortive retina in the optic stalk in place of neuroglia.

At the business meeting, Dr. Maitland Ramsay, of Glasgow, was elected President for the ensuing year.

A number of members attended the annual dinner, which provided a very congenial evening. The speeches were commendably brief. In proposing the toast of the Society, the President tried to imagine what would be its future title, but was chary of a decision. In reply, Sir John Parsons was full of humour, rallied the past Presidents on their absence, spoke of the President's prowess at golf, and consigned the Secretaries to perdition. Professor Gullstrand, an honorary member of the Society, was warmly welcomed. He had just arrived from the International Congress at Washington, and hinted that the invitation to hold the next Congress in London in 1925 would probably be accepted.

ANNUAL REPORT OF THE COUNCIL OF BRITISH OPHTHALMOLOGISTS.

THE Council of British Ophthalmologists presents its report for the session 1921-22.

At the first meeting of the session the following officers were elected:—President, Mr. J. B. Lawford; Vice-Presidents, Sir

George Berry and Mr. E. Treacher Collins; Hon. Treasurer, Mr. J. H. Fisher; Hon. Secretary, Mr. M. S. Mayou.

The following members were elected on the Executive Committee:—

Messrs. Collins, Fisher, Paton, and Sir John H. Parsons, with the President and Secretary *ex-officiis*.

It is with great regret that the Council has lost the services of Mr. Paton as Hon. Secretary, and it takes this opportunity of expressing its thanks for the excellent work done by him.

As the result of representations by the Council of British Ophthalmologists, and after conferences between a Committee of the Council of the Royal College of Surgeons of England, and one appointed by the Council of British Ophthalmologists, the Royal College of Surgeons has instituted the diploma of F.R.C.S. (with Ophthalmology). The first examination is to be held this year.

The Council has completed a report on the question of sight-testing opticians, and this has been filed. It has also completed a report on the "Report and Recommendations of the Consultative Council of the Ministry of Health." It is not proposed to publish these reports at present.

The Council has issued a report concerning some Public Authorities who are in the habit of referring ophthalmic cases to hospitals for examination, treatment, and (or) report. Representations were made both to the Post Office about their employees, and to the Home Office about the Police Forces of Great Britain.

A Committee is at present engaged upon the Standardization of Test Types.

A letter was recently addressed to the Ministry of Health pointing out that certain Approved Societies were proposing to use funds, set aside for medical treatment, for provision of ophthalmic benefits for their members, *through sight-testing opticians*, inviting the Ministry to take steps to suspend such negotiations, until the Departmental Committee on the "Causes and Prevention of Blindness" had made its report.

Mr. E. Treacher Collins was asked to represent the Council of British Ophthalmologists at the International Ophthalmological Congress in Washington.

The expenses of the Council have been defrayed by its members.

The Council has to thank the Council of the Royal Society of Medicine for affording them the use of a room for their meetings.

ABSTRACTS

I—THE OCULAR MANIFESTATIONS OF MULTIPLE SCLEROSIS

Holden, Ward A. (New York).—The ocular manifestations of multiple sclerosis. *Arch. of Ophthal.*, March, 1922.

Pupillary anomalies in multiple sclerosis are rare, palsies of the ocular muscles occur in about 20 per cent. of the cases, nystagmus is found in almost all advanced cases. Particular interest, then, lies in the consideration of the less easily interpreted nerve symptoms, which are of great importance in assisting the diagnosis of the nervous disease. These symptoms have long been known, and the chief advance in our knowledge of them recently has been in the greater precision in determining the defects in the visual field. In 1908 **Holden** read a paper, the purpose of which was to show that a central scotoma of rapid onset, if one could exclude poisoning by chemicals, diabetes, and hysteria, meant, as a rule, either pressure upon the optic nerve from retained secretion in the paranasal sinuses or multiple sclerosis. A negative rhinological examination with radiographs of the sinuses will exclude the sinus origin of central scotoma. After exclusion of the factors named, it is justifiable to make a diagnosis of multiple sclerosis if one or more additional symptoms of that disease can be elicited. The symptoms on which Klingmann insists as corroborative of the diagnosis of multiple sclerosis when a central scotoma is found are ankle clonus and the Babinski toe reflex. It is surprising that he does not mention the state of the abdominal reflexes, yet these are abolished or diminished in multiple sclerosis as frequently as a Babinski reflex occurs, namely, in about 80 per cent. of cases, and we have learned that if the other common causes of central scotoma can be eliminated diminution of abdominal reflexes warrants us in diagnosing multiple sclerosis, even if no other symptoms are present.

The characteristic plaques develop in the optic nerve or tract at any point, but with great frequency in the axial fibre-bundle of the optic nerve.

In the plaques the inflammatory exudation at first merely compresses the optic nerve fibres and interferes with their function. Later, the medullary sheaths break down and the glia tissue proliferates, but since the axis cylinders are not destroyed restitution of vision frequently takes place. In the beginning, if the inflammatory plaque lies near the optic disc, there may be congestion or

a low degree of oedema of the disc, but if the plaque lies far back in the nerve, the disc for a time remains normal. However, after an interval, ranging from one to six weeks, pallor of the disc usually appears and remains permanently, even though vision remains normal.

The pallor of the disc varies with the extent or location of the plaque, and for descriptive purposes it has been classified as of three varieties: (*a*) pronounced whiteness of the disc in its entire extent; (*b*) a slight pallor of the disc in its entire extent; and (*c*) a pallor of the infero-temporal third of the disc, with the other two-thirds normal in colour. This last indicates an involvement of the axial or papillo-macular bundle alone. It is, to a certain extent, characteristic of this disease.

The defective fields in multiple sclerosis are of three types: (*a*) peripheral contraction; (*b*) central or para-central scotoma; and (*c*) a combination of both peripheral and central defects. The present-day interpretation of peripheral contractions is as a functional or fatigue field which is found in the hysterical or neurasthenic subject, and that it is suggested by the examiner to a patient capable of suggestion. The more characteristic defects in the field are the central and para-central scotomata. In these cases great care must be taken in the tests, which must be carried out with very small test objects.

The onset of the visual disturbance is acute in half the cases, and in a large percentage both eyes are affected. This variety never leads to blindness, and a reassuring prognosis may always be given.

When the visual disturbance is the first symptom noticed, and a central or paracentral scotoma develops in a few days without pallor of the disc, the differential diagnosis between multiple sclerosis and hysteria is often most difficult. There is no difficulty in distinguishing between the optical disturbances of multiple sclerosis and those of tabes.

To sum up, we may say that defective vision in one eye or both, generally of acute onset, and mostly with one or more small scotomata at or near the point of fixation is a common symptom of multiple sclerosis that may come on at any time, but often appears early in the disease. A rhinological examination should exclude the paranasal sinuses as causative factors, and then in many cases we must exclude hysteria. The early organic signs on which we rely for the exclusion of hysteria are diminution of the abdominal reflexes and the presence of the Babinski reflex and ankle clonus.

S. S.

II—DETACHMENT OF RETINA, POSSIBLY DUE TO ECLIPSE

Harman, N. B. (London) and MacDonald, Peter (York).—Detachment of the retina, probably due to exposure to light during an eclipse. *Brit. Med. Jl.*, April 22, 1922.

An unusual case is reported by **Harman** and **Macdonald.** The chief facts are as follows:—A man, 54 years of age, observed the eclipse on April 8 and was seen by one of the writers on April 13, complaining that half-an-hour after observing the sun through a piece of cinematograph film and also through a funnel formed by his hand he saw sparks in the right eye. On the 13th the vision of the right eye was perception of light in the upper half of field. The right eye, on examination, showed a very extensive detachment of the retina involving the whole of the upper half of the eye. Left vision, corrected 6/6. A few fine vitreous opacities were present. The treatment adopted was, confinement to bed, low diet, elastic bandage to the one eye, blisters to the right temple on alternate nights, and a mixture containing potassium iodide. On April 28 patient says he sees "more of things with the right eye." May 12, only patches of rugous retina remain, but the vitreous is slightly foggy. May 26, R.V. 3/60. June 11, a shallow detachment of about 4 dioptres up and outwards, and some wrinkling inwards. In the macular region is a small white elevation the size of the disc, with a dark shadow under the summit. Radiating outwards from the little hillock are a number of "striding edges" or folds which spread upward into the shallow detachment. Disc seen clearly; vision equals 2/60.

The sequence of events may be summarized as follows:—(1) Severe damage to the macula consequent on exposure to sunlight; (2) a succeeding infiltration of the macular region; (3) extension of the exudate in such quantity as to cause a gross detachment of the retina; (4) absorption of the greater quantity of the fluid during the weeks of rest; (5) exposure of the initial area of damage in the macula; (6) onset of scarring in the macular region.

S. S.

III—INDUSTRIAL TRAUMA

Barkan, Hans (San Francisco).—Industrial trauma in relation to the development of ocular tuberculosis, syphilis, and neoplasms. *Arch. of Ophthal.*, March, 1922.

Barkan sets himself to enquire whether certain diseases of the eye may follow injuries to that organ. The majority of traumatised eyes heal according to the nature of the injury and the

knowledge and skill of the surgeon, but a certain percentage show deviations from the normal which lead us to suspect complicating factors. These factors may be the general poor condition of the patient, some chronic disease, or a local process about the eye, such as the teeth, tonsils, or sinus infections, all or any retarding healing. In the case of hereditary syphilis most surgeons have seen interstitial keratitis follow an injury to the eye. It is to be noted, however, that Igersheimer in 300 cases found not a single case pointing towards trauma. Barkan believes that traumatic cases are not so infrequent. To explain the process is difficult; several theories may be considered. Luetic bodies may be in the circulation, and in the cornea of such cases antigens and antibodies may meet and colloidal precipitation from a blow might start the process. Another mode of origin may consist of the direct activation of dormant spirochaetes present in the cornea. The following facts must be established:—(1) The trauma must be positively ascertained and more than such as the individual is exposed to in the course of his employment; (2) the trauma must be of the cornea itself and cause a definite irritation; (3) an expert must determine that the interstitial keratitis is not present at the time of injury, and that the consequence of the injury is an interstitial keratitis.

In tuberculosis of the eye following a trauma our footing is more secure than in the case of syphilis. Autopsies show that after puberty 98 per cent. show some hidden or active tuberculous lesion. Slight injuries are not infrequently followed by tuberculosis. The organism may already be present, inactive in the eye, and be started into activity and the hyperaemia of the iris or small capillary haemorrhages or thrombi may establish the iris as a *locus resistentiae minoris*. Barkan has seen tubercles of the iris appear within seven days of the injury.

As regards the relation of trauma to neoplasms there is sufficient evidence to make it justifiable to give the patient the benefit of the doubt, but (1) the occurrence of the trauma must be proved; (2) the trauma must be severe enough to appear effective; (3) the growth must develop at a place likely to be injured by the trauma; (4) it must be reasonably certain that the traumatised part was normal before the accident; and (5) the time of relationship must be reasonable. Fuchs estimated that among 259 choroidal sarcomata examined 11 per cent. might have been traumatic. The time element in regard to the injury is even more important than in tuberculosis and syphilis. Barkan gives eight short cases to illustrate his subject.

S. S.

IV—EXPERIMENTAL MODIFICATIONS OF THE OCULAR TENSION

Magitot and Bailliart (Paris).—Modifications of the ocular tension under the influence of pressures brought to bear on the globe. (Experimental researches.) [Modifications de la tension oculaire sous l'influence de pressions exercées sur le globe (recherches expérimentales.)] *Ann. d'Ocul.*, Vol. CLVI, November, 1919.

Magitot and Bailliart set themselves to solve experimentally the question as to what increase of intraocular tension will occur, say in an eye of 20 mm. Hg. pressure, if one exerts a pressure of 10 grammes on the eye. The experiments were carried out on cats, whose tension resembles the human, lying between 15 mm. Hg. and 25 mm. Hg., higher pressures being obtained, up to 40 and 45, by the use of subconjunctival injections of 15-20 per cent. salt solution. The cats were chloralised and not curarised, as the former treatment leads to less alteration of the general blood pressure so long as the cat is kept from chills. Deeper narcosis was induced to get pressures below 15 mm., but none below 10 mm. could be got, this being the pressure at death and for about 60 to 80 minutes after. They discarded methods that included injecting or tapping the eye because of resorption and of vaso-dilatation. Bailliart's dynamometer was used, held in the hand, or immobilized in a support, while they used their own mercury manometer in preference to the less manageable Wessely or other Schultèn instruments.

They give a tono-dynamometric curve from which it is evident that for tensions of 15 to 40 there is a definite increase of pressure when various weights are applied to the eyes; for example, if a weight of 24.5 gr. be rested on an eye with a 22 mm. Hg. pressure, this then rises to 43 mm. They find that the Schiötz tonometer is fairly constantly 5 to 10 mm. too low in its reading.

In the course of their experiments the authors have noted some other points of interest, viz., (*a*) In eyes with pressures between 15 mm. and 30 mm. of mercury each weighting, however short it be, causes a fall in pressure, usually about 15 mm. This disappears very quickly and the manometric column returns quickly to its former level; (*b*) this phenomenon does not occur in eyes with pressures of less than 10 mm. Hg.; (*c*) it becomes exaggerated when one raises the pressure artificially above 30 mm. Hg.

The manometric experiments have shown how the ocular pressure can be influenced by the natural pressures, the contraction of the lids in winking causing a rise of 5 mm. Hg. The contraction of the ocular muscles also induces a momentary rise of the same

kind. The least traction on the nictitating membrane of animals provokes a much greater rise, even up to 10 or 15 mm. Hg. Magitot and Bailliart feel convinced that the pressure is never constant in the waking animal.

Artificially, a subconjunctival injection of physiological serum can act by its mass, compressing the globe mechanically for some instants. A like result can be obtained also by the retrobulbar injections, but it is noteworthy that these, doubtless by their rapid diffusion in the orbit, have less action. In this connection, too, the authors see some relationship to the findings already current on the influence of massage on the tension, notably the findings of Paul Knapp at Basle in 1912, that the reduction of pressure in a normal eye after massage lasted three-quarters of an hour, whereas in chronic simple glaucoma, where a similar degree of reduction had been induced by massage, this lasted but fifteen minutes.

W. C. SOUTER.

V—A METHOD OF ANAESTHETIZING THE INFRA-ORBITAL NERVES

Lemoine, P., and Valois, G. (Nevers).—A new method of anaesthetizing the infra-orbital nerve. (Un nouveau procédé d'anesthésie du nerf sous-orbitaire.) *Ann. d'Ocul.*, March, 1921.

Lemoine and **Valois** consider that with improvement of the technique of regional anaesthesia, the general anaesthetic will almost never be used except in young children. They realise that the infra-orbital nerve, supplying the lower part of the lacrimal sac, the nasal canal, superior maxilla, the floor of the orbit, and almost the whole of the lower lid, and a part of the cheek, is a very important nerve to put out of action, and their paper consists of a description of a new surface marking for the insertion and direction of the syringe needle. They declare that the inner border of the fronto-malar suture, the infra-orbital foramen, and the part of the alveolar border comprised between the central and lateral incisors, are in one straight line. They have corroborated this line on seven skulls and in a considerable number of patients, and they find that the nerve is never so far from this line but that it is thoroughly influenced by the anaesthetic. A distance of 3.7 cm. to 4.7 cm. separates the point of emergence of the nerve from this part of the gum, and a needle of 4.5 cm., as recommended by Duverger, may properly be employed. The line is marked on

the face by a touch of tincture of iodine or by an aniline pencil, although a thread connecting the two points is useful to give the proper direction to the needle so that it enters into the infra-orbital foramen, and 1 cc. of a 4 per cent. novocain solution is adequate. The buccal route has several advantages, and the point of the entrance of the needle where the mucosae of lip and gum meet, can be sufficiently anaesthetized in a very timid patient by a pledget of wool soaked in anaesthetic.

The paper is illustrated by one plate with two figures—one showing the line on a skull and the other from a photograph of a patient's face in process of being anaesthetized.

W. C. SOUTER.

VI—AETIOLOGY OF CATARACT

Kirkpatrick, Henry (London).—The aetiology of primary cataract. *Brit. Med. Jl.*, March 25, 1922.

Amid the general obscurity that envelopes the causation of primary cataract **Kirkpatrick** considers that the following factors stand out clearly:—(1) A cataract is the result of a degeneration of the fibres or cells of the lens; (2) uncomplicated primary cataract is nearly always bilateral; (3) certain conditions, as senility, diabetes, pellagra, the ingestion of certain poisons, rickets, cholera, gastro-intestinal disturbances, focal infections and debilitating general conditions; (4) an hereditary predisposition to the disease; (5) convulsions of the type found in tetany; (6) as a sequel to the removal of the thyroid; (7) excessive glare; (8) country, such as India, where cataract is most frequent.

It may be considered that disturbances in the functions of the endocrine glands will most likely prove the determining factors, but such disturbances need not necessarily occur primarily in those glands, but may be dependent upon a failure of other endocrine organs.

Kirkpatrick concludes:—(1) That the cause of primary cataract is probably a constitutional one; (2) that the morbid conditions which are associated with primary cataract injuriously affect the action of the endocrine glands; (3) that primary cataracts sometimes follow thyroid and para-thyroid deficiencies, and are then almost certainly caused by a disturbance of endocrine function; and (4) that exposure to injurious light and heat rays and the existence of an uncorrected error of refraction are likely to determine the formation of a cataract in the eye of a person who is predisposed to a degenerative change in the lens fibres by a constitutional defect.

S. S.

VII—EPIBULBAR CARCINOMA

Sattler, H. (Leipzig).—A contribution to the study of epibulbar carcinoma and its treatment. (Ein Beitrag zur Kenntniss der epibulbaren Carcinome und ihrer Behandlung.) *Arch. f. Ophthal.*, Vol. CV, 1921.

Sattler briefly refers to some of the cases of epibulbar carcinoma that have come under his care, but describes more fully, one in great detail, three cases in which the tumour penetrated into the interior of the eye. Besides these and seven examined by Fuchs there are recorded in the literature, only ten cases in which invasion of the globe has occurred.

This may take place in different ways:—

1. Most frequently, columns of cells grow down from the main mass at the limbus obliquely backwards into the scleral sulcus, here obstruct Schlemm's canal, and then penetrate between the corneo-scleral fibres into the perichoroidal space, where the growth spreads, not deeply into the ciliary body and vascular layers of the choroid, but, following the line of least resistance, between the lamellae of the suprachoroidal space and the peripheral bundles of the ciliary muscle.

Except in a few cases the iris has also remained free from invasion.

Perforation along the anterior ciliary vessels has been definitely proved in only two of Fuchs's cases.

2. The tumour invades the cornea, processes of epithelial cells growing into the spaces of the substantia propria either in the superficial layers only or through the whole thickness of the peripheral part of the cornea down to Descemet's membrane, causing total destruction of the tissue and perforation. The growth may also spread in this way from the edge of Descemet's membrane into Schlemm's canal and the interior of the eye.

3. From the tumour, as it spreads over the cornea, processes grow down into the substantia propria, at points where Bowman's membrane has been destroyed, nearly to Descemet's membrane. They then pass along parallel to it and enter the eye in the manner described in 2.

Speaking generally, the sclerotic and the cornea with its Bowman's membrane offer some resistance to the ingrowth of epithelioma. As regards the sclerotic, the episcleral connective tissue and that of the conjunctiva bulbi form the stroma for the new growth, only the superficial layers of the sclerotic becoming infiltrated with cancer cells. In the case of the cornea, it may

be partially or totally covered with the new growth and still retain the Bowman's membrane to a greater or less extent intact. A new pannus-like connective tissue layer, composed of young connective tissue cells, lymphocytes, plasma cells and fine blood vessels, grows out from the limbus and by its situation partly above, partly below Bowman's membrane forms a bridge between the cancer cells and the corneal substance. This granulation tissue pierces Bowman's membrane at various points, probably where the nerve fibres pass through it, and thereby opens a way for the ingress of the new growth into the cornea.

Ulceration of the surface occurs not infrequently in epibulbar carcinoma, and with it signs of inflammatory reaction are sometimes associated. The inflammation is, in exceptional cases, so intense that the stroma of the new growth is densely infiltrated with pus cells: the cancer cells are released through the destruction of the stroma and thus found in the exudation in the anterior chamber.

In the few cases where the pre-auricular glands were swollen, ulceration of the new growth was present, and this swelling was probably of inflammatory origin. Implication of the lymph-glands by the tumour seems not to have occurred once.

As to treatment, excision is indicated where there is no likelihood of restoring any useful vision or there is reason to believe that the tumour has invaded the eye. It is, however, often impossible to say clinically how far it has penetrated the coats of the eye (this may occur early when the growth is still small) or already spread out in the interior.

Exenteration of the orbit, followed if necessary by X-ray treatment, is necessary where the tumour has spread backwards into the orbital tissues. It is only in such cases that true metastasis may arise.

Where the growth has spread over the surface of the cornea it ought to be removed and in doing so it may be possible to determine if it is lying loose on the cornea and has not penetrated deeply at the limbus. Removal is then followed by the application of X-rays or radium. Otherwise, enucleation is necessary.

In cases where the growth is small and practically confined to the limbus conservative treatment, i.e., removal with subsequent use of X-rays, or, preferably, radium if available is to be recommended.

In the application of radium it has still to be decided whether it should be employed for a short time at small intervals or for a longer period at longer intervals. The amount of reaction and effect on the tumour will form a guide.

THOS. SNOWBALL.

VIII—EXTRACTION OF FOREIGN BODIES

Lemaître, E., and Garmy, A.—On the extraction of periorbital foreign bodies. *Ann. d'Ocul.*, Vol. CLVI, May, 1919.

This paper was communicated in March, 1919, to the Ophthalmological Society of Paris. It runs to sixteen pages of the *Annales,* being embellished with two photos in the text and two whole page plates of reduced skiagrams, six on each plate. **Lemaître** and **Garmy** do not deal with intraorbital cases, except some where the foreign body was partly in and partly out of the orbit, nor with foreign bodies in the pterygo-maxillary fossa. The cases are classified according to the site of lodgment of the foreign body, as *internal* when in ethmoidal or sphenoidal sinuses, *superior* when in frontal bone, inside frontal sinus or slightly behind it, *external* when in anterior part of temporal fossa, *inferior* when in the maxillary sinus or in the retromalar region below, *posterior* when behind the orbit in the actual cranial cavity. These different localizations correspond to the different ways of access, which are para-latero-nasal, sinuso-frontal, temporal, vestibular.

Para-latero-nasal route.—This route, so often used by rhinologists for neoplasm of the nasal fossa, gives access to all internal and some posterior periorbital foreign bodies, particularly those in the ethmoidal and sphenoidal sinuses. The two retro-orbital foreign bodies described by the authors were removed by going through the great wing of the sphenoid between the sphenoidal and the sphenomaxillary fissures.

Sinuso-frontal route.—Here the incision is hidden in the eyebrow and intrasinusal foreign bodies are dealt with just like a diseased frontal sinus, but where the foreign body is in the frontal bone one should enlarge the bony opening in the inner table and see the state of the brain, from which any foreign body can be removed.

Temporal route.—In this group the authors find that foreign bodies sometimes appear to be superficial when they have actually produced bony lesions, which, they insist, really ought to be excluded by examination in every case, to avoid missing any meningeal complications. By this route the anterior part of the temporal lobe can be explored for foreign bodies.

Vestibular route.—Three varieties, the simple sinusal, as used for maxillary antrum disease, which allows access to foreign bodies embedded in the roof of the sinus; the second, or transsinusal prolonged, in which the sinus is opened, the back wall or the upper-inner wall being opened to give access to the pterygo-

maxillary fossa or to the ethmoid; the third method, used only since the present war, leaves the sinus intact—after incision of the mucosa, it follows the narrow gap between the internal pterygoid covering the ascending ramus of the mandible and the external aspect of the maxilla, i.e., the latero-sinusal-vestibular route. This route also gives access to behind the malar.

PERI-ORBITAL FOREIGN BODIES

WAYS OF ACCESS

Para-latero-nasal	Simple	Ethmoid	4 cases
	Prolonged towards the	Sphenoidal sinus	2 cases
		Apex of orbit	2 cases
Sinuso-frontal	Simple	Frontal sinus	1 case
	Prolonged towards the	Frontal bone	1 case
		Frontal lobe	2, 1 died
Temporal	Simple	Temporal fossa	—
	Prolonged towards the	Squamous temporal	3 cases
		Apex of orbit	2, 1 died
		Temporal lobe	—
Vestibular	Simple (or Sinusal)	Max. sinus roof	1 case
	Prolonged towards the (Transsinusal)	Back pt. pterygo-max. fossa	—
	Do. do.	Ethmoid, even sphenoid	1 case
	Atypical (or latero-sinusal)	Retro-malar region below	3 cases

They lay stress upon the intermittent control by the screen, and the great value of accurate radioscopy and radiography. As regards prognosis they divide the cases into two categories; the first comprises six cases of intracranial projectiles, of which four intracerebral were complicated by brain abscess, the second comprises seventeen cases of foreign body without cranial complication. In the former category two deaths from brain abscess pre-existent but not found at operation, one case with troublesome dacryocystitis; in the latter category no complications of importance ensued, slight hypoaesthesia of orbito-nasal region, readily reduced endonasal synechiae, slight trismus, which was present even before operation, while the operation scars were very slight. They had 23 cases in all, and of ten of these notes in some detail are given in the paper.

W. C. SOUTER.

BOOK NOTICES

Medical Ophthalmology. By R. FOSTER MOORE, O.B.E., M.A., B.Ch.Cantab., F.R.C.S. London: J. & A. Churchill. 15s. net.

It may be said at once that this book is one which will be not only instructive to the reader whether physician, surgeon, or general practitioner, but will also serve as a constant book of reference. It is the kind of book which one would like to see printed with large margins or to have interleaved, so that additions and possibly corrections might from time to time be added. But one must at the same time hasten to say that the additions will not be numerous, and the corrections few, if any.

The plan of the book is excellent. The first chapter is devoted to a clear and systematic description of the anatomical substratum of vision, and to this is added the brief consideration of certain ophthalmological signs, and an enumeration of the conditions under which they are manifested. The subsequent chapters are devoted to the consideration of diseases in which these signs and symptoms occur. The repetition which this necessitates is most useful. It enables one, so to speak, to regard a sign or symptom from two different aspects—as a phenomenon occurring in various different diseases, and as one of the occasional or constant signs in a particular disease. Thus, in the first chapter retinal haemorrhage is considered generally, and in subsequent chapters it is considered in reference to arterio-sclerosis, renal disease, and the various diseases in which it occurs. It is almost invidious to pick out for special notice any particular part in a volume in which everything has been done so well, but the chapters on arterio-sclerosis and on renal retinitis strike one as being unusually instructive, and it is satisfactory to notice that diabetic retinitis is here regarded as a distinct entity. It is also refreshing to come across, as we do occasionally, definite statements such as "it is very unusual to meet with retinitis except in the presence "of increased blood pressure, but retinitis is often absent though "the blood pressure is greatly raised,"—a statement of no little importance considering the undue importance which is apt to be attached at the present time to blood pressure above the so-called normal. With reference to the cause of the exophthalmos in Graves's disease the author is very definite in expressing his belief that "the immediate cause of the exophthalmos in Graves's disease is an increase in the orbital fat, perhaps combined with oedema of the tissues, and that there is at present no satisfactory evidence of any other cause of it." Of course, before coming to this conclusion he had carefully considered all the evidence for other alleged causes of the phenomenon.

With reference to Leber's atrophy, he states that " in the early stages a mild degree of change in the nerve head occurs: it takes the form of obscuration of the edges of the disc without obvious swelling." We think this is scarcely the whole truth, for in one case the swelling was such as to lead a good observer to diagnose intracranial growth in a case which was afterwards shown to be one of Leber's atrophy. There is a very brief reference to myasthenia gravis—rather too brief we venture to think, in view of the fact that such a large proportion of cases of myasthenia gravis first seek advice at an eye hospital on account of diplopia or obvious ocular paralysis. The chapter on toxic amblyopia strikes one as very complete and very instructive. The only typographic errors we have come across are curiously enough on the first page, and they are trivial, and the author is to be congratulated on a task which is certain to remain a standard work for many years. It should be added that the illustrations are numerous and really illustrative, and the index is most satisfactory. There is also a complete index of the authors quoted in the book.

The Medical Annual, 1922. Bristol: John Wright & Sons, Ltd. London: Simpkin, Marshall, Hamilton, Kent & Co., Ltd. Price, 20s. net.

The editors of this valuable annual review of medicine and surgery have devoted a generous amount of space and illustration to the subject of ophthalmology, of which Colonel A. E. J. Lister has taken full advantage to give an interesting account of recent advances in that subject. We note with pleasure that he has drawn extensively on articles that have appeared in this journal. He deals with cataract, eye affections associated with disease of other organs, general eye affections, glaucoma, preventive ophthalmology, diseases of the retina and trachoma. Dr. Ramsay Hunt contributes an interesting short note on optic neuritis in encephalitis lethargica and in disseminated myelitis. The article on cataract is illustrated by six plates showing Barraquer's phakoerisis operation. There are several other good points in this article and some very sound advice on the subject of thorough cocainization and the importance of minor technical details, drawn from the large Indian experience of the writer, which, he says, long and bitter experience has burned into his memory. The article on trachoma is also one in which the author's large experience entitles him to speak with authority. The illustrations are excellent and include, in addition to the Barraquer plates (from Barraquer's original negatives), a coloured plate from a drawing by Dr. Edward Jackson, of thrombosis of a retinal vein following influenza, drawings of the appearances of intracellular bodies

described by Cantonnet in ophthalmia neonatorum and diagrams to illustrate the operative treatment of prolapsed iris and scleral wounds and Lagrange's sclerectomy.

Colonel Lister and the editors are to be congratulated on the value of the space devoted to ophthalmology, a special subject which the general practitioner, for whom this annual is mainly intended, cannot afford to neglect.

The Annual Report of the Madras Government Ophthalmic Hospital for the Year 1920. Madras: Printed by the Superintendent, Government Press.

The annual report of the Madras Ophthalmic Hospital is written by Major Wright, who is now the Superintendent of the institution. The report shows a steady increase in the work done.

The hospital contains 170 beds, and is in a constant condition of being overcrowded, the average number of daily sick being 264. It is only possible to accommodate such an excessive number of patients by using the verandas for them to sleep in.

The number of in-patients treated during the year was 3,797, and the number of new out-patients 20,138. 2,774 operations were performed upon in-patients, of which 1,525 were for senile cataract, and 1,091 operations were performed upon out-patients. The total cost of accommodating, dieting, and treating these patients amounted to an equivalent of a little over £9,000 at the present rate of exchange.

The results of 1,254 operations for senile cataract, performed by three members of the staff, are reviewed. The immediate vitreous loss amongst these amounted to 3.3 per cent., or, excluding intracapsular expression operations, 2.9 per cent., 10.5 per cent. had a vision of less than 6/36 on discharge from hospital; the ultimate results are, however, very much better, since the eyes of many patients tested at this stage have not become quiet; the failures would probably amount to about 3 per cent. Expulsive haemorrhage occurred in two cases.

Capsulotomy and extraction with irrigation, as described in the 1918-1919 report, was the operation adopted in the large majority of cases, the simple operation with round pupil being mostly performed in cases of Morgagnian cataract.

A saturated aqueous solution of picric acid was used to disinfect the face, eyelids and lid margins before operation. An injection of 2 per cent. solution of novocain, made five minutes before the operation, " along the line of the zygoma from the pinna to a point below the centre of the eye," was found useful in those patients who were nervous and inclined to violent contractions of the orbicularis.

Sclero-corneal trephining was performed in 237 cases, 197 of

these being for the relief of very advanced glaucoma. Seven eyes were trephined for retinitis pigmentosa, and the operation was followed by an improvement in four instances. Wright controls the conjunctival flap by laying on it a moist "koochie swab" (i.e., a small mop of sterilized wool which is mounted on a piece of the midrib of a palm leaf); this has been found a useful means of controlling the movements of the eye and of keeping the field clear of blood.

A case of quinine poisoning is reported in a boy aged seven; only six grains of quinine were given in one and a half grain doses every three hours. The child was found to be blind on waking next morning. "Eight days later the pupils were dilated and did not respond to light or accommodation, the disc was pale, light pink colour, arteries like fine white threads, some of which had a minute hair-line blood column. The retina was pale grey, the macula showing up smoky red." Paracentesis was performed on each eye and five weeks later the vision improved to 5/15.

The use of eyebaths of a saturated solution of magnesium sulphate was found very useful in the treatment of corneal ulcer and of gonorrhoeal ophthalmia. It is noteworthy that, using this treatment, not a single eye was lost from gonorrhoeal ophthalmia in the course of the year.

The epidemic of "macular keratitis" appears to have subsided, only 22 cases of the disease having been treated.

Excision of the lacrymal sac continues to be the usual treatment for chronic dacryocystitis. The operation was performed upon 227 cases.

Ophthalmology forms an important part of the medical curriculum in Madras, as it is necessary for a student to pass a written, a clinical and an oral examination in the subject before qualification; the development of the Elliot School has progressed during the year and the School now meets the needs of a large post-graduate class in addition to the students.

The report contains valuable statistics which show the variety of eye diseases met with in the Tropics and their incidence.

NOTES

Death

WE regret to report the death of PIETRO BAIARDI, late Professor of Ophthalmology in the University of Genoa, and Director of the Royal Ophthalmic Clinic of Turin. He was well known for his work in connection with refraction and operative technique. He will be remembered as a strong advocate for the subconjunctival extraction of cataract.

"Brain"

DR. GORDON HOLMES has been appointed Editor of our contemporary *Brain*.

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Nettleship Prize

WE congratulate Dr. H. M. TRAQUAIR, to whom the Edward Nettleship Prize has been awarded.

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Appointments

DR. A. MAITLAND RAMSAY, of Glasgow, has been appointed President of the Ophthalmological Society of the United Kingdom for the year 1922-23.

MR. A. S. PERCIVAL, of Newcastle-upon-Tyne, has been appointed President of the Section of Ophthalmology at the Annual Meeting in Glasgow next July of the British Medical Association.

DR. W. P. INGLIS POLLOCK has been appointed Surgeon to the Glasgow Eye Infirmary, and Dr. LEONARD J. C. MITCHELL Ophthalmologist to the Melbourne Hospital.

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A suggested Ophthalmic Year Book

DR. LUCIEN HOWE, when President of the American Ophthalmological Society in 1920, proposed in his Presidential Address that the present Ophthalmic Year Book should become the International Year Book of Ophthalmology. More recently he has addressed a letter to the Ophthalmologists of this country dealing with the matter, inviting opinions and co-operation. It appears that that valuable publication, the "Jahresbericht," is now defunct, and the proposed Year Book is designed to take its place. The question is a difficult one, and is being considered by the Council of British Ophthalmologists.

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Honours

DR. S. A. KINNIER WILSON has been elected an Honorary Fellow of the Royal Academy of Medicine of Turin. Dr. DE LAPERSONNE has been elected a foreign Associate Member of the Belgian Royal Academy of Medicine.